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Distribution of Some Weeds in the United States, Especially *Iva xanthifolia*, *Lactuca scariola*, *Solanum coroliseum* and *Solanum rostratum*

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further evidence as to the degree of dissociation occurring there.

The work recorded in the present paper was all completed previous to June, 1894, with the exception of the viscosity determinations.

DISTRIBUTION OF SOME WEEDS IN THE UNITED STATES, ESPECIALLY IVA XANTHIIFOLIA, LAC-TUCA SCARIOLOA, SOLANUM COROLINEUM AND SOLANUM ROSTRATUM.

BY L. H. PAMMEL.

One of the interesting parts dealing with geographical botany is the question of the distribution of plants over the earth's surface, where man has played an important part. Many changes have occurred in the character of our North American flora since it has been occupied by man. In many cases it has become quite impossible to tell when and where plants were first introduced. We have, it is true, in some cases records when plants were introduced, but in the vast majority of cases there were no records at hand. Early collectors in many cases simply mentioned vague localities with dates, but say nothing as to whether the plants are indigenous or introduced. Papers dealing with the spread of certain weeds have been made by several investigators in both Europe and America. Franz Buchenau has carefully traced the spread of *Leersia oryzoides*. L. H. Dewey that of *Salsola kali*, var. *Tragus*.*

Who can attempt to trace the spread of *Portulacca oleracea* in the United States, or in any given state or territory, or such cosmopolitan weeds as *Polygonum aviculare* and *Plantago major*? No one has attempted to record the earliest appearance of these weeds in any part of the United States.

The writer has for several years been interested in studying the distribution of several of our weeds. I shall attempt to

* Russian thistle. Its history as a weed in the United States with an account of the means available for its eradication. Bulletin No. 15, Division of Botany. United States Department of Agriculture, p 26, Washington. 1894.

give the distribution and history of these weeds from information obtained from various floras, catalogues of plants, correspondence, and especially the larger herbaria of this country as Gray herbarium, Harvard University; Columbia College, herbarium; Missouri Botanical Gardens, Parry herbarium, U. S. Department of Agriculture, and those of the Agricultural College. I wish to express my thanks to correspondents who have responded to requests for information.

MARSH ELDER.

Iva Xanthiifolia, Nutt.

DESCRIPTION. An annual weed one to seven feet tall, leaves all opposite, hoary with minute down, ovate rhombic or the lowest heart-shaped, doubly serrate or cut-toothed or obscurely lobed; heads small, crowded in axillary and terminal panicles.

In Gray's Manual, 6th edition, the distribution of this weed is given as follows: Northwest Wisconsin to Minnesota and Kansas westward. It must indeed originally have been quite local in many places in this region. It is only recently that this weed has attracted attention. I have known of the weed in southwestern Minnesota, near La Crescent, since 1884, where it occurred as an introduced plant along the embankments of a road. Strange to say, this weed did not occur on the east side of the Mississippi river as late as 1890. In 1889 and 1890 this weed was growing in considerable quantity in a few places in the city of Boone, Iowa. The weed has made but little progress east of Boone. Ames is but fourteen miles distant, but as yet the weed has not been found in this city. West of Boone, especially at Woodbine, in Harrison county, and in Crawford county, it is a very common weed. In Monona county it occupies many of the vacant lots. The writer has also observed it in Cerro Gordo county, but evidently it is just getting a foot-hold. J. C. Arthur writes me that he observed it in Charles City, Floyd county, in 1871. This county joins Cerro Gordo on the east. The writer has also received it from Fremont county, in southwestern Iowa. It is common in the Red River Valley of the North and other parts of Minnesota and Dakota, and in parts of Iowa along the Missouri river, as well as in Colorado. It is a very aggressive weed, as accounts by Upham, Bolley, Crandall and Bush indicate. At Missouri Valley, as far north as Onawa in the Missouri river bottoms, I

have observed this weed in such abundance occupying waste places, streets, and old neglected buildings, that it may be fairly called a nuisance. It is seldom, however, that this weed gives the farmer much trouble, as it may be eradicated very easily. The weed reminds one very much of the great Ragweed of the Mississippi valley.

Marsh Elder was originally native from northwest Wisconsin to New Mexico, as Fendler collected it in the latter place as early as 1847, but since the cultivation of the prairies it has become much more common. It was undoubtedly confined to alluvial soils, and from thence spread to neighboring farms, especially old barns and neglected buildings.

In regard to the distribution, Conway McMillan (*Metaspermae of the Minnesota valley*, 533) says: "Minnesota valley throughout, especially south central and southwest districts, roadsides, banks and waste places."

Upper Louisiana plains, (Bigelow) 1853.

Yellowstone and Upper Missouri, July and August, 1854. (Hayden.)

American Plains. Latitude 41. Hall and Harbour, *American Plains Flora* No. 269, 1862.

Iowa, Minnesota, 1848 (Parry). Probably not in Iowa.

Upper Missouri near Fort Mandan, Prince Neuwied to the Rocky Mountains; Nuttall (*Torrey and Gray, Flora North America*, 2, 286).

Upper Missouri, S. M. Rothhammer.

Comanche Plains, Bigelow, September, 1853.

Yellowstone Expedition, 1873 (Allan).

Rocky Mountain Latitude. 40-41, 1868. Alluvial grounds or along streams, Saskatchewan and Nebraska to New Mexico. Utah and Idaho, first collected by Nuttall (*Gen. II*, 185, Gray, *Synoptical Flora of North America*, Vol. I, Pt. II, p. 246; Nuttall, *Trans. Am. Phil., Soc. VIII*, p. 347; Gray, *Pl. Wright, II*, p. 85).

ARIZONA. 1869 (Edward Palmer).

CANADA.—In alluvial soil along rivers and small streams. Reed lake west of the old Wier's lakes of Setter's farm, (Cypress hills) and on slope of high bank between Fort Edmonton and the river. (Macoun) Swift Current Creek, C. P. R. crossing, Fort Qu Appelle, close to the Hudson Bay Co's store (J. M. McCoun, C. P. R. R. (MacCoun *Catalogue Canadian plants*, part II, p. 240). McCoun, *Flora Canadensis*, Saskatchewan Plains, August 21, 1872. Saskatchewan (E. Bourgeau) 1857-8.

COLORADO.—A western plant ranging from New Mexico to Idaho. It has been reported from Iowa and from northern Michigan, and is undoubtedly extending westward. The plant produces seed in considerable quantity and propagates only by seed. It is in many places a serious pest in cultivated fields because of its abundance and rapid growth. (C. S. Crandall, Bulletin No. 23, Col. Agr'l. Exp. Sta. 1893, p. 9). From head waters of Clear Creek, Platte valley, 1868. (C. C. Parry). (Powell's Colorado exploring expedition to the Rocky mountains, Lat. 40-41°). 1868, George Vasey. Sunset Canon (Penard). Big Muddy river. Colorado Springs, (Torrey.) Platte valley, (C. C. Parry.)

DAKOTA, NORTH.—“In all parts of the state in rich soil and waste places, common throughout the Red River Valley as much as *Ambrosia trifida* is in Illinois, but only a waste place weed.” (H. L. Bolley.) “The most abundant and rank weed in rich soil, waste places, roadsides and about stables and deserted dwellings, throughout the Red River Valley and westward.” (Upham, Proceedings of Boston Soc. of Nat. History, Vol. XXV, 1890, p. 160.)

WESTERN DAKOTA AND NORTHERN MONTANA.—*Iva xanthifolia*. Nutt. Common in Minnesota, is replaced by *I. axillaris* Pursh; (John B. Leiberger, Notes on the Flora of western Dakota and eastern Montana, adjacent to the Northern Pacific Railroad. Rep. Minn. State Hort. Soc., 1884, p. 365.)

SOUTH DAKOTA.—Distribution quite general throughout the state. Brookings, (Thomas A. Williams.)

ILLINOIS.—(Athens, 1863, Hall.)

INDIAN TERRITORY.—(C. H. Thompson.)

IOWA.—In all places mentioned extremely abundant, occupying waste places in streets, near neglected buildings, a tall, coarse and homely weed, in many cases eight to ten feet high.

Arthur (Contributions to Flora of Iowa. A Catalogue of the Phaenogamous Plants, p. 18. Appendix to Flora of Iowa, 1876, p. 40).

Charles City (Arthur, History of Floyd county).

Boone (Pammel, Report Comm. on State Flora. Proceedings Iowa Acad. of Sciences, Vol. I, Part II, p 17).

Boone, 1890 (Pammel). Keokuk, 1890. (Rolfs.)

Boone, 1894 (Pammel). Woodbine, 1894. (Pammel.)

Vale, 1894 (Pammel). Mason City, 1894. (Pammel.)

Missouri Valley, 1894 (Pammel). Turin, 1894. (Pammel.)

Onawa, 1894 (Pammel). Carroll, 1894 (Pammel). Charles City, 1876 (Arthur). Humboldt (F. L. Harvey).

KANSAS.—Hamilton, Sedgwick and Riley counties, Loti (Hitchcock). "It grows abundant about Manhattan and I have also seen it growing at Winfield, Cowley county, 1894." (Hitchcock.)

Southern part of the state. (C. H. Thompson.)

Manhattan, August 28, 1888. (Kellerman.)

Leavenworth, Lawrence. (C. H. Thompson.)

Topeka, North Topeka, Onago, Washington. Potwin Place.

Arkalon, 1891. (M. A. Carleton in Holzinger, Contributions.

U. S. Nat. Herb., Vol. I, No. VI, p. 208).

MICHIGAN.—Keweenaw county, near coal-houses, 1889.

Clifton (Wheeler).

Keweenaw county, Farwell (Beal & Wheeler, Flora of Michigan.)

MINNESOTA. — "Frequent southeastward, abundant southwestward, extending north to Todd county common, and in the Red River Valley to Grand Forks (Upham) and St. Vincent." (Scott, Havard.) (Upham, Catalogue Flora of Minnesota, including its Phænogamous and Vascular Cryptogamous Plants, Indigenous, Naturalized and Adventive; Geological and Nat. Hist. Survey of Minn., Pt. VI of Ann. Rep. of Progress for 1883, p. 18.) "A new weed that is steadily gaining ground, traveling eastward and possibly southward. It is a candidate for the same situation as the large Ragweed, prefers the edges of fields and along roadsides and streets, but especially about barns. If circumstances are unfavorable it can blossom when only a few inches high, while under more fortunate conditions it reaches much above one's head. It closely resembles the Cockle-bur when young, but as it grows older has more the appearance of the common sunflower. With flowers, however, after the pattern of the Ragweed." (Arthur, in Upham, Cat. Flora of Minn., p. 79.)

Fort Snelling. (Means) Lake Pepin Valley (Sarah Manning, The wild flowers of Lake Pepin Valley. Minnesota Hort. Rep., 1884, p. 101).

Red River Valley (Upham), Goodhue Co., (Sandberg, 131,) Montevideo (Moyer, 132, Conway McMillan, The Metaspermæ of the Minnesota Valley; p. 533.)

La Crescent, Minnesota, 1884 (L. H. Pammel).

St. Paul, 1861 (T. J. Hale).

MISSOURI.—Common (S. M. Tracy, Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Missouri, 1886, p. 45. Under *Parthenium xanthiifolia*.)

Atchison, Platte counties in the river bottoms in considerable quantities. "In Jackson, and I suppose must be found all along the Missouri river bottoms, from Hamburg, Iowa, to Independence." (Bush, 1894,) Kansas City. (Pammel, 1889.)

MONTANA.—Columbia Falls. "Common throughout the state." 1894. (R. S. Williams.) "Found in this state, but not abundant." 1894. (Kelsey.)

NEBRASKA.—"Occurs quite frequently in vicinity of Lincoln." (Bessey.)

"Common from Omaha to Lincoln and Fremont." (Shamel, 1894.)

Lincoln. (Webber, Sept. 1887.)

Wahoo, Whitman, Grant county. Thedford. Thomas county, 1893. (P. A. Rydberg.)

Western part. (Swezey.)

(Webber, Flora of Nebraska. Rep. Nebraska State Board of Agrl. 1889, p. 287.)

NEW MEXICO.—Rock Creek. Aug. 17, 1847, (Fendler.)

From New Mexico to Idaho and the Saskatchewan. (J. M. Coulter, Manual of the Botany of the Rocky Mountain Region. 1885, p. 179.)

NEW YORK.—Seneca.

OREGON.—Union county. (W. E. Cusick.) Clearwater (Rev. Spaulding).

TEXAS.—Comanche Plains, 1853 (J. M. Bigelow).

UTAH.—Salt Lake City. Altitude 4,300 feet. (M. E. Jones, August, 1879.)

WASHINGTON.—W. Klickitat county bottom lands of Columbia river (W. N. Sucksdorf, Sept., Oct., 1884).

WISCONSIN.—Northwest Wisconsin and northwestward, T. J. Hale (Gray Manual of Botany of Northern United States, fifth edition, 1868, p. 250.)

(Swezey, Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Wisconsin. Wisconsin Geol. Survey, Vol. I, p. 384.)

Northwest part, T. J. Hale (Bruhin, Vergleichende, Flora Wis. K. K. Zool. Gesel, Vienna, April 5, 1876, p. 255.)

Menonimee Valley, Runge (W. M. Wheeler, Flora of Milwaukee Co. Proc. of the Nat. History Soc. of Wisconsin, p. 172, April, 1888, pp. 157, 172.)

PRICKLY LETTUCE.

Lactuca Scariolæ, L.

DESCRIPTION. An annual or winter annual, pale green glabrous; the lower part of the stem has soft prickles; leaves four to six inches long, vertical because of the twisting, lanceolate to oblong with a row of soft spinulose denticulate prickles on the margins, occasionally sinuate toothed, sometimes pinnatifid. Midrib beneath beset with soft prickles; base of leaf sagittate, clasping. Heads in an open panicle, 10—18 flowered, flowers pale yellow; beak of fruit as long as the akene, the latter being striate nerved. Pappus slender of capillary bristles arranged like a parachute.

It took twenty-one years for Prickly lettuce to become common. It was first observed near Hovey's Garden in 1863-64. From 1863-1894 it was reported from Ohio, Illinois, Wisconsin, and other states.

During the past summer much interest has been manifested on the appearance of this weed in many localities, so much so that Prof. Morrow, of Illinois, issued a press bulletin, and Dr. J. C. Arthur an extended account of this weed¹. It would be almost superfluous to publish more on the distribution of this weed, as Dr. Arthur has such a full and excellent account, but it may not be out of place to bring the localities together, collectively, along with the other weeds of this paper. Dr. Gray (Synoptical Flora of North America, Vol. I, pt. II, p. 442), makes this statement: Waste ground becoming common in Atlantic states near towns and habitations.

IDAHO.—Sweet 1894 (Thomas J. Coonrad). Moscow. Per-
nicious weed in northern part of state, 1894 (F. L. Henderson).
Blackfoot; August, 1893 (Edward Palmer). Blue lakes, August,
1893, (Dr. Edward Palmer).

ILLINOIS.—First saw a few specimens in 1884, is now com-
mon everywhere. (Brendel).

Cook county, "Roadsides and dooryards, infrequent, 1891."
(Higley and Raddin. "The Flora of Cook County, Illinois, and
a part of Lake County, Indiana. Bulletin, Chicago Academy
of Science, Vol. II, No. 1, p. 71).

Evanston, 1883, (C. S. Raddin), catalogue of the Phænogam-
ous Plants of Evanston and Vicinity for 1883, p. 15).

Chicago. Roadsides and dooryards everywhere, 1893. (Pam-
mel.)

¹Wild or Prickly lettuce. Bulletin No. 52, Vol. V, Nov., 1894.

Chicago. Lincoln Park, north and south sides, abundant everywhere, 1885, in waste places and streets. (Pammel.)

Wayne, Dupage county, Illinois, 1894. (Pammel.)

Andover, (Anderson); Rockford, 1879, (M. S. Bebb.)

Peoria, 1886, (Brendel, *Flora Peoriana*, p. 38). Fairbury, 1894 (Thomas S. Morris). Warner, 1894 (W. W. Warner).

INDIANA. (See Bulletin 52, Vol. V, 1894).

Found in this state somewhat later than in adjoining states. At the present time generally distributed in the towns and cities of the northern half of the state. In some sections has invaded the country and become a farm and roadside weed. Diligent search in some counties of the southern part of the state has not revealed it, but it is known to be firmly established in twenty-nine counties. (Arthur.)

Crown Point, Lake county, July, 1894; (Bartlett Woods and Jerome Dinwiddie).

Kendallville, Noble county, August, 1894, (J. S. Conlogue.)

Valparaiso, Porter county, September, 1894, (I. C. B. Suman).

Shipshewana, La Grange county, July, 1894, (Elias Wight).

Furnessville, Porter county, September, 1894, (E. L. Furnes).

Walnut, Marshall county, June, 1894, (Arley Body).

Hagerstown, Wayne county, July, 1894 (E. S. Bunnell).

Logansport, Cass county, Sept., 1894 (Dr. Robert Hessler.)

Crawfordsville, Montgomery county, Aug., 1894 (Prof. M. B. Thomas).

Indianapolis, Marion county, Aug., 1894 (John S. Wright).

Clinton county, Aug., 1894 (Lane, Bewsey and Maisch).

Bloomington, Monroe county, Aug., 1894 (Prof. D. M. Mot-tier).

Terre Haute, Vigo county, Sept., 1894 (W. S. Blatchley).

Ft. Wayne (S. Basch). Bourbon (J. D. Chaplain).

Westville (E. S. Smith). Hometown (T. M. Andrews).

Iowa.—Mt. Pleasant. Very thick west of town a few years ago, and has almost disappeared, 1889 (J. H. Mills).

“Waste places; becoming frequent,” Ames, 1889 Hitchcock—A Catalogue of the Anthophyta and Pteridophyta of Ames, 1891. Trans. St. Louis Acad. of Sci., Vol. V, No. 3, pp. 487-532, also separate p. 505. Bowling Green, 1893 (G. W. Smith).

Waste places becoming frequent, Iowa City (Hitchcock).

Davenport and LeClaire, Scott county (W. F. Rolfs, C. B. Weaver and I. C. Brownlie).

Little Rock, Lyon county (J. R. Ball). Keokuk county (Hursey).

Mitchell county (Whitney). Jasper county (I. J. Mead).

Iowa City, 1889 (T. H. McBride). Cedar county (C. B. Weaver).

Polk county (Johnson). Humboldt county (Sherman).

Roland, Story county (Kimble). Story county (Pammel and Combs).

Warren county (Lang.). Marshall county (Eckles).

Grundy county (Steelsmith). Pleasantville, 1894 (Metcalf).

Streets of Ames, 1887 (Halsted). Muscatine, 1891 (Reppert).

Marshalltown, 1894 (Stewart and Pammel). Keokuk (P. H. Rolfs).

Cedar Rapids, 1890, (Pammel). Des Moines, 1890 (Pammel).

Alden, Hardin county C. T. Stevens.

Ames, 1870 (J. C. Arthur, Fourth Biennial Rep. Iowa Agr. College). Earliest record I can find in state.

Ida county, 1894, first time observed (Needham).

KANSAS.—McPherson, Sumner, Riley and Butler counties Hitchcock). All through the state as far west as Sherman county. (Hitchcock).

Introduced within three years and rapidly taking possession of dry places along the railroad. (Smith, Addition to the Flora of Kansas, Transactions Kansas Academy of Science, Vol. XIII, p. 97).

MASSACHUSETTS.—Near Hovey's garden, Cambridge, 1863-4. (Murray).

Cambridge, waste grounds and roadsides. (Gray, Manual of Botany, 5th edition. p. 281).

MICHIGAN.—A bad weed, spreading and becoming rapidly introduced everywhere along lines of railroads, etc. (Beal and Wheeler, Michigan Flora, 13th annual report of Secretary, Michigan State Board Agr., pp. 180, 108). Durand (J. M. Fitch).

Cambridge (Mrs. F. A. Dewey). Decatur (Mrs. F. A. Dewey). Erie (A. J. Keeney). Union City (D. V. Groesbeck).

NOTE.—Pammel Rep., Iowa, Agr. Soc., 1893, p. 449. Thirteenth Biennial Rep. Iowa Agr. College, 1887-1889. p. 45. Bull. No. 26, Iowa Agr. College Experiment Station.

MINNESOTA.—Northern Minnesota. "I was greatly surprised to find, some eight years ago, that it was even growing on the confines of civilization." 1886. (L. H. Bailey.)

St. Paul, E. J. Hill, 1889 (Arthur, Bulletin 52, Vol. V, Indiana Agric. Exp. Station, p 90).

St. Anthony's Park, 1888 (J. H. Schuette).

Minneapolis, Minnesota (J. H. Sandberg, 1891) Ft. Snelling (Means).

MISSOURI. * "It was found in St. Louis in 1878 by Mr. I. C. Martindale, and was seen by local collectors even earlier; a specimen of the plant in the herbarium of the Purdue University, collected by Mr. H. Eggert, is labeled 'waste places, St. Louis, July 18, 1877.' Mr. G. W. Letterman said in 1886 that it had been 'thoroughly naturalized in St. Louis during the past eight years, and has now taken to the woods.' In 1880 it was 'extremely abundant (in St. Louis) in waste places,' according to Dr. Geo. Engelmann." (Ind. Agl. Exp. Station Bull. 52, Vol. V, p. 88.) Tracy, Catalogue of the Phænogamous and Vascular Cryptogramous Plants of Missouri, 1886, p. 52.)

Quite common in Kansas City, Mo., 1889. (Pammel.)

St. Louis. (Engelmann, July, 1875.)

Jackson county. (Bush, 1890).

Springfield. (Dewart, 1892).

NEW JERSEY.—Ballast and made land near Communipaw Ferry, July, 1879. (Addison Brown). (Britton: A Preliminary Catalogue of the Flora of New Jersey, 1881, p. 56).

NEW YORK.—"Abundant all through the state so far as I have seen." (L. H. Bailey). Trumansburg Point, Cayuga Lake, gravelly field a few rods south of the landing, where it is abundant, 1886. (W. R. Dudley, The Cayuga Flora, Bull. Cornell University; Science, Vol. II, p. 55). Starkey, New York: (Comm. Torrey Botanical Club, Poggenburg, Britton, Sterns, Brown, Porter, Hollick, Preliminary Cat. of Anthophyta and Pteridophyta, growing spontaneously within one hundred miles of New York city, p. 31). Brooklyn: Ballast. (B. D. Halsted). East Buffalo: An adventive well established. (1882, David F. Day, Bull. of the Buffalo Soc. of Nat. Sciences, Vol. IV, No. 4, p. 261. The Plants of Buffalo and its Vicinity, 1883, p. 197). Elmira, Syracuse, Clyde, and rapidly spreading at Albany. (Charles H. Peck, letter to L. H. Dewey.)

* Indiana Agricultural Exp. Station, Bull. 52, Vol. V, p. 88.

OHIO.—Columbus. “Sparingly about the culvert, but is spreading rapidly, and is now found in several places along roadsides. July 9, 1892.” (Moses A. Craig: A Catalogue of the Uncultivated Flowering Plants Growing on the Ohio State University Grounds, Bulletin of the Ohio Agr'l Exp. Station, Vol. I, No. 2. Technical Series, p. 88. May, 1890.)

Sulphur Grove, August 12, 1892: “Frequent, especially along ditches.” (Geo. H. Shull.)

Columbus, 1892. (Lazenby, Agricultural Student, I, 1894.)

King and Neill avenues. (Freda Detmers, Journal of the Columbus Hort. Soc., Vol. V, No. 3, p. 53, plate IV.)

Cleveland. (Halsted, Proc. American Assn., Adv. Sci., Indianapolis meeting, p. 308.)

Painesville, 1879. (W. C. Werner, Journal Columbus Hort. Soc., Vol. V, p. 54.)

Cleveland. (W. C. Werner.)

Cincinnati, July, 1890. (Lloyd.)

Summit county. (Claypole.) Toledo. (Sanford.) Toledo, 1878. (Werner; Journal Columbus Hort. Soc., Vol. V, p. 54.) Centre, (Charles Duckwall.) Mt. Blanchard. (L. Frank Hay.) Oak Harbor. (Albert Overmeyer.)

OREGON.—Eight Mile, 1884. (Andrew Ashbaugh.)

PENNSYLVANIA.—Gettysburg. (Thomas Meehan.)

S. Bethlehem. (Porter.) E. Bethlehem. (S. G. Walker.) Lancaster, July, 1879. (J. H. Small.)

TENNESSEE.—Nashville, September, 1894. “Seen for the first time.” (A. Gattinger.)

TEXAS.—Dallas, June, 1894, (Ex. Herb., J. Reverchon.)

Northern Texas. 1887. (Pammel.)

UTAH.—Salt Lake, 1880. “M. E. Jones tells me that he found it at Salt Lake when he went there in 1880, and it is now abundant at all of the settlements from Logan to Mantz.” (L. H. Dewey.)

VIRGINIA, WEST.—Monangalia, near Laurel Point where it has become a troublesome weed, (Millspaugh, Flora of West Va., p. 396).

WASHINGTON.—Rock Island, 1893 (J. B. Leiberger.) Along the Great Northern R. R., Egberk Springs, Nilson Creek, Wenatchee, 1883, (J. B. Leiberger.)

WISCONSIN.—Common in waste places, spreading rapidly along railroads, (L. S. Cheney and R. H. True, On the “Flora of Madison and Vicinity,” a Preliminary Paper on the Flora of

Dane County, Wisconsin. Transactions of the Wisconsin Academy of Science, Arts and Letters, Vol. IX, part 1, p. 82.) Mukwonago, Forty miles west of Milwaukee, (David F. Day, Bot. Gaz., Vol., VIII, p. 159).

Vernon county, near La Crosse, 1886. (Pammel, Prairie Farmer, January 29, 1887.)

Madison, 1883. "Quite common." (Pammel. Goff, Bull. No. 39, Wis. Agrl. Experiment Station, p. 18, fig. 6.)

Neenah, Elkhart lake, August, 1892. (J. H. Schuette.) S. E. Wisconsin, 1886, (Parry.)

BUFFALO BUR, SPINY NIGHT SHADE, SAND BUR.

Solanum rostratum, Dunal.

DESCRIPTION. An annual, somewhat hoary or yellowish, with a copious wholly stellate pubescence, one to two feet high, spreading specimens occasionally five feet across, globular, leaves interruptedly bipinnatifid or only once pinnatifid, lobes roundish, obtuse and repand, armed with straight bristles, corolla yellow, about an inch in diameter, slightly irregular, short lobes broadly ovate, calyx prickly, adhering to the fruit, at least fitting very closely. Stamens, as well as style, declined, anthers taper upward, linear—lanceolate, dissimilar the lowest one much longer and larger with an incurved beak.

*In Gray's "Synoptical Flora" the distribution is given as "Plains of Nebraska to Texas (Mexico)." In Gray's Manual, sixth edition, the statement is made "spreading eastward to Illinois and Tennessee." Plains (Nuttall Gen. I, p. 129). (Pursh, Fl. I, 156, T. 7).

The writer has been familiar with this weed in the northwest for a number of years. It was first observed in a lot in Watertown, Wisconsin, in 1887. I saw occasional specimens in St. Louis in the fall of 1886. It was apparently well established in Nevada, southwest Missouri in 1888, as large specimens were found growing in many vacant lots. The same summer I saw a great deal of it growing in Ft. Scott, Kansas, and various towns along the M. K. & T. R. R. in Indian territory. How long it had been established here I was, of course, unable to say. It had the appearance everywhere of being thoroughly at home. In Texas, from Denison south to Hempstead in Waller county, and west to San Marcos in Hays county, the weed was met everywhere, growing in many places to the

* Vol. II, Part I, p. 231.

exclusion of all other plants. It showed evidences of long having been established. Since 1889 I have received specimens from Illinois and Iowa. The U. S. localities and dates, when reported, are as follows: Upper Missouri, Hayden, "very abundant about old trading posts, along old roads, and in prairie dog villages on the Upper Missouri." (Transactions Am. Phil. Soc., 1861.)

"I see no difficulty in supposing that it is native to the region of the plains. It likes barren places; abounds where the grass is scant. In that may be found a reason why it appeared more in Iowa of late years." J. E. Todd. We may assume that it has always been a native to the prairie states, especially west of the Missouri river. Early collectors—Geyer, 1839, who found it at Pierre, now South Dakota. Bexar: Texas, 1828. Rock Creek: Fendler, 1847. El Paso: Wright, 1849. North of the City of Mexico: Hartweg, 1837. Washita, Indian Territory, 1868, Dr. E. Palmer. Abundant about Boulder and Denver from 1873 to 1876, Prof. Henry. Abundant at Denison, Texas, for twenty years, Munson. At least twenty to twenty-five years at Ennis, in north central Texas, Hogan. Thus far it has made but little progress in the timbered region of southeastern Texas. It has not been reported from Louisiana, and there are few indications of its occurrence in the Gulf states. Cultivation, and the transit of cars from western states has caused the species to become abundant in the states that border on the Missouri river—Kansas, Nebraska, Western Missouri (where it was abundant in 1886, Tracy), eastern Kansas, eastern Nebraska and western Iowa. That it was not abundant throughout the plains may be assumed from the fact that in eastern North Dakota the plant is an occasional oddity, Bolley. It seems to have increased in number from the southwest to the northwest. Of its occasional appearance in the United States, outside of the territory indicated, it is reported more frequently from Illinois than elsewhere. Its migration there comes from Missouri and Nebraska, undoubtedly conveyed by stock trains. It seems to have been in parts of Tennessee, according to Gattinger, for thirty years, but has never become a serious pest. From present indications it may be many years till it will become a weed pest in states east of the Mississippi.

UPPER MISSOURI.—1839. (Nicollet's Northwest Expedition. Charles A. Geyer.)

UPPER ARKANSAS.—1869. (Bristol.)

Ranges from New Mexico to Wyoming and across the plains. It has migrate eastward, being common in Iowa and Missouri, and is reported from Illinois, Indiana, Ohio and New York. It is everywhere recognized as a bad weed. Here, from its abundance, it ranks as one of the worst. (Eastern and Western Weeds. Halsted, Bull. Torrey Botanical Club, XIX., Feb. 1892, p. 46.) (Proc. Am. Ass'n Adv. of Science, Indianapolis meeting, Vol. XXIX., p. 308.) (Check List of American Weeds, No. 4,561.)

ARIZONA.—By Loew. (Rothrock Botany, G. M. Wheeler's Geographical Surveys West of the 100th Meridian, p. 207).

CANADA.—Ottawa. "Spontaneous within the limits of the city of Ottawa for a number of years." (Fletcher in Macoun Catalogue of Canadian Plants, part II., p. 348.)

COLORADO.—Denver, 1873—1876. "When I was in Colorado from 1873 to 1876, I found *S. rostratum* growing almost everywhere on the plains in the vicinity of Denver. Plants occupied dry ground, and grew from ten to twelve inches high, many being not more than six or eight." (W. A. Henry.)

Fort Collins. "My first acquaintance with the plant dates from 1890, my first year in Colorado. It was then spoken of as a bad weed by farmers, and I presume has been known as such since farming began in Colorado. It is more troublesome some years than others, as only a small proportion of the seed matures." (C. S. Crandall.)

Plains near Greeley, August, 1871. (W. M. Canby.)

Denver, (B. H. Smith.) Canon City, (Brandagee, Porter.) Plains of the Platte, (Coulter.) "Common on the plains." (Porter and Coulter, Synopsis of the Flora of Colorado. Hayden, Geological Survey. Miscellaneous Publication No. 4, p. 104.) Manitou, August, 1881

DAKOTA, NORTH.—Lamoure, Jamestown, Valley City, as a scattering oddity. Fargo, 1894. (Bolley.)

DAKOTA, SOUTH.—"Generally distributed throughout the state; not so abundant in the eastern part. Carried by railroads." (Thomas A. Williams, Brookings.)

Valley Junction, (E. J. McCulloch.) Pierre, 1839 (C. A. Geyer.) Pierre, (Eloise Butler.) Vermillion, (Todd.)

GEORGIA.—Macon, Carmilla, (A. W. Chapman.)

ILLINOIS.—Brendel says that the weed comes from the far west, the seeds being dropped probably by freight cars.

Peoria, railroad bridge, 1891; in a vacant lot, 1892; different places in Peoria, 1893. (Brendel.)

Andover, 1894, (J. A. Anderson.) Mero, 1894, (C. Dorsey.) Evanston, 1883, (C. S. Raddin, Cat. of the Phænogamous Plants of Evanston and Vicinity, p. 20.) Evanston, 1895, (C. F. Shipman.) South Chicago, August, 1886, (A. B. Martin.) (Higley & Raddin, Fl. Cook Co., Ill.; and part of Lake Co. Ind.; Bull. No. 6, Chicago Acad. of Sci., Vol. II, p. 85.)

INDIAN TERRITORY.—(Palmer.)

On the line of the M., K. & T. Railroad, at Caddo, Colbert, McAllister, Atoka, Muskogee, Vinita, 1888, (Pammel.) False Washita, 1868, (Dr. E. Palmer.) Limestone Gap, July, 1877, (Geo. D. Butler.)

INDIANA.—“Southern part, some years ago.” (Bolley.)

Lafayette, (Arthur.) Toleston, on Ft. Wayne Railroad, near Calumet Bridge (Hill.) Dune Park, 1890, (Higley & Raddin, Fl. Cook Co., Ill., and part of Lake Co., Ind., p. 85.)

IOWA.—Conway, Taylor Co., some years, (Stimson.) Bedford, Taylor Co., (Pammel.) Agency, (Mrs. Richman; Pammel; Report Comm. on State Flora, Iowa Acad. of Science, Vol. I, part II, p. 17. Thirteenth Biennial Rep. Iowa Agrl. College, 1888-1889, p. 45. Bull. No. 13, Iowa Agrl. Experiment Station, p. 74. Halsted, Twelfth Biennial Rep. Iowa Agrl. College. Report Iowa Agrl. Soc., 1893, p. 447, fig. 1.) Mt. Ayr, 1894, (J. W. Sale.) Guthrie Center, 1894. “Plant 5.6 inches in diameter,” (W. M. Ashton.) Iowa City, 1888, (T. H. McBride.) Hamburg, July, 1888, (Hitchcock.) Chariton, 1889-1891, (J. A. Brown.) Saylorville, 1890, (Schaffer.) Carroll Co., 1890. Des Moines Fair Grounds, (A. G. Lucas.) Valeria, Jasper Co., (J. E. Bailey.) Ames, (Pammel.) Polk City, 1891. Mt. Pleasant, 1891, (J. H. Mills.) Fremont Co., Council Bluffs, 1883, (J. C. Arthur, Contributions to the Flora of Iowa, No. IV. Proc. Davenport Acad. of Nat. Sciences, Vol. IV, Feb. 8, 1892, p. 66.)

Found in the State in 1894, as follows: Ainsworth, (J. H. Pearson.) Ames, (Tilden.) Boone, (V. O. Holcomb.) Burwick, (Sylvester Snyder.) Castalia, (E. S. Lambert.) Corning, (Salts; W. L. Abbey, 1893; A. R. Ballantyne; A. A. Rawson.) Delmar, (Sunderlin.) Dubuque, (Asa Horr.) Grundy Center, (Anderson.) Gus P. O., (E. J. McCulloch.) Hampton, (T. H. Hacker.) Harlan, (Geo. D. Ross.) Hedrick, (Melville.) Ida county, (Needham.) Imogene, (C. S. Young.) Little Sioux, (McWilliams.) Logan, (F. H. McCabe.) Marion, (A. E. Allen.)

Newell, (E. W. Stetson.) Oldfield, (E. Turner.) Plover, (W. S. McEwen.) Postville, (Ellison Orr.) Red Oak, (W. T. Marshall.) Sanborn, (J. H. Wolf.) Seymour, (L. W. Lewis and S. A. Hibley.) Story county, (Pammel, Ball and Combs.) Valley Junction, (S. V. A.) Whittemore, (L. E. Albion.) Creston, quite a number in the streets, (Pammel.)

KANSAS.—Everywhere. (B. B. Smith, Check List of the Plants of Kansas, 1892, p. 18. Wood and Willis, The New American Botanist and Florist, Revised Ed. of Wood's Botany, p. 63.)

Topeka, July, 1873, (E. A. Popenoe.) Riley, (E. E. Gayle.) Manhattan, June 6, 1886, (C. H. Thompson. Bulkley, April, 1888.) Also, Hamilton, Jackson, Harper, Pottawatamie, Bourbon, Reno, Rawlins, Seward, Sherman, Ford, Barber, Cloud, Greenwood, Clay, Saline, Greeley, Kiowa, Miami, Smith, Linn, Decatur, Chase, Osage, Johnson, Douglas, McPherson and Wichita. Miami county, 1883, (J. H. Oyster.)

KENTUCKY.—Fairmount, Jefferson county, (Albert Rust.)

MASSACHUSETTS.—Lowell. "Rather common," (Dr. F. Nickerson.) Watertown and Somerville, (C. E. Perkins.) Malden avenue from the west, (F. S. Collins.) (Collins and L. L. Dame, Flora of Middlesex County, Mass., p. 78.)

MEXICO.—San Luis Potosi—Alt. 6,000–8,000 ft., 22 N. lat.—(Palmer and Parry.) Chihuahua, (Pringle, Potts.) Zimapan, (Coulter.) Valley of Mexico, 1866, (Bourgeau, 114, 542, 982.) North Mexico, (Hemsley, Biologia, Central Americana Bot. II, p. 414.) (Dr. Coulter, Dr. J. Gregg, 1848–9; M. Bourgeau, May 8, 1886.) North of the town of Mexico, 1837, (Bentham, Plantas Hartwegianas, 1839, p. 23, No. 201. Mount Orizaba, August, 1891, (H. E. Seaton.) States of Coahuila and Nuevo Leon, 1882, No. 942, (Palmer.)

MINNESOTA.—Minneapolis, Clay county, near Moorehead. Red River Valley, Minnesota Valley, (Conway McMillan.)

MISSOURI.—Very common in western Missouri, and spreading eastward along railroads. Sometimes erroneously called 'Canada Thistle.' (S. M. Tracy, Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Missouri, 1886, p. 61.)

Wild in pastures, 1892.

"Is about as abundant as it was when I first came to St. Louis." (Wm. Trelease, 1885–1894.)

St. Louis, August, 1879, (Englemann); September, 1886, (L. H. Pammel); 1887, (Colman's Rural World); Nevada, Sedalia, 1887, (Pammel); Springfield, July 23, 1888, (S. Weller.)

MONTANA.—“Found occasionally,” (F. D. Kesley). Forsyth, 1893, (J. N. Rose.)

NEBRASKA.—Lincoln, 1875, (Samuel Aughey, Catalogue of the Flora of the Nebraska—published by the University of Nebraska, 1875—p. 21.

“In 1888 in great quantities for the first time in all parts of Nebraska.” “Is becoming a troublesome weed in Nebraska. Came from southwest a few years ago.” (C. E. Bessey.)

Kearney, August, 1889, (J. H. Holmes.) Keyapaha county, 1893, (Fred Clements.) Superior, Trenton, 1894, (Amy Robinson.) Waste places, roadsides, etc., in Lincoln, Oxford, Crete, Fairbury, Milford, Omaha, Louisville, Weeping Water, Alliance, Otoe county, (Webber, Catalogue Flora of Nebraska, 1889, p. 136. Extract Report Nebraska State Board of Agrl. for 1889.) Agalolla, (W. A. Henry.) Lincoln, (Webber.) Crete, (C. D. Swezey.) Duval county, (Rydberg.) Alliance, 1889, (Webber.) Ashland, September, 1890, (Williams.) Hastings, 1886, (Harvey Thompson.)

NEW JERSEY.—New Brunswick. Cultivated grounds, (Report Botanical Department New Jersey Agricultural Experiment Station, 1890, p. 377. Halsted, 1887, Proc. A. A. Sc., Vol. XXIV. Torrey Botanical Club Bulletin, Vol. XIX, p. 46.)

In waste places, Passaic; sparingly about Passaic, (Woolsen.) Atlantic: Introduced with grain at Hammonton, (F. L. Basset.) Cape May: Cape May Point, (Canby.) Fugitive from the west, (Britton, Catalogue of Plants found in New Jersey, Vol. II, p. 181.)

NEW YORK.—Brooklyn Ballast, (Halsted.) (Comm. Torrey Bot. Club, Preliminary Cat. of Anthophyta and Pteridophyta, etc., p. 38.)

NEW MEXICO.—Rock Creek, August, 1847, (Fendler.)

OHIO.—Sellsville, (Wilcox, W. R. Lazenby and W. C. Werner, Suppl. List to the Plants of Ohio, p. 7.)

OKLAHOMA.—Stillwater, July, 1893, (E. W. Olive.)

PENNSYLVANIA.—Susquehanna, October, 1893, (A. Graves.)

RHODE ISLAND.—East Providence, (Jas. L. Bennett, Plants of Rhode Island, being an Enumeration of Plants Growing Without Cultivation in the State of Rhode Island. Proceedings of Providence Franklin Soc., 1888, p. 33.)

TENNESSEE.—South Nashville, “I believe it reached here in war times, by movements of troops or by cattle droves. Some years plenty; other years less,” (A. Gattinger.) Nashville,

"Introduced in Nashville and vicinity, and spreading," (A. Gattinger, The Tennessee Fl., with Special Reference to the Flora of Nashville, Phænogams and Vascular Cryptogams, 1887, p. 67.) Nashville, July, 1877, (A. Gattinger.) Tiptonville, sandy fields near the Mississippi, June 26, 1893, (S. M. Bain.) Lake county, abundant, (S. M. Bain.)

TEXAS.—Lindheimer, 1886, No. 400; Gillespie county, No. 451, (G. Jermy). Plains throughout Texas, (Coulter, Manual of the Phanerogams and Pteridophytes of Western Texas. Contr. U. S. Nat. Herb., Vol. II, No. 2, p 290.) Denison, "I have known it here for eighteen years," (T. V. Munson.) Expedition from Western Texas, to El Paso, Oct., 1849, (Charles Wright.) Guadalupe, clayey soil, margin of thickets, Sept. 1854. Western Texas, Red River to Rio Grande, (Torrey and Gray, Pacific R. R. Report, Vol. II, 1854, p. 172.) Southwest, 1880, No. 941, (Palmer.) Ennis, "I have known it about twenty years," (Hogan.) Brazos, 1848-9, Brazos county, (Pammel.) Dickinson, (Fred Mally.) Western Texas, (Torrey and Gray, Pacific R. R. Report, Botany, Red River to Rio Grande, Vol. II, p. 172.) On Rio Grande, 1888, (A. C. Lemmon.) Bexar, 1828, Austin, Dallas, Hempstead, Melissa, Calvert, San Marcos, Sherman, McKinney, Paris, Corsicana, College Station, Clay Station, Brenham, Giddings, Manor. Abundant at all these points in 1887 and 1888. (Pammel.) El Paso, 1888, (G. R. Vasey.)

WISCONSIN.—Watertown, 1887, (Pammel.)

SODOM APPLE, HORSE NETTLE, SAND BRIER, BULL NETTLE.

Solanum Carolinense L.

A deep-rooting perennial, from one to two feet high, propagating freely by its underground rootstocks, which are from one to three feet long; stems hirsute or roughish pubescent with 4-8 rayed hairs, stout subulate yellowish prickles, usually numerous; leaves oblong or sometimes ovate, obtusely sinuate toothed or lobed or sinuate pinnatifid. The few to several flowered racemes simple becoming lateral; lobes of calyx acuminate. Corolla light blue or white, an inch or less in diameter. The yellow globose berries half an inch in diameter.

The record of Sand Brier or Horse Nettle forms an interesting chapter in the migration of perennial plants from one part of the country to another. It is much easier for an annual to become acclimated than a perennial. Throughout the Mississippi valley there are tropical plants which have become

thoroughly naturalized, as in *Amarantus retroflexus*, *A. albus*, *A. spinosa*, *Abutilon avicenne* and *Sida spinosa*. Within the memory of the present generation Indian Mallow has been naturalized in western Wisconsin; *Argemone Mexicana* in a comparatively short time has found its way into Kansas, Iowa and Illinois; *Cardiospermum halicacabum* of the southwest is common opposite St. Louis, in Illinois.

With these annuals, it is only essential that they mature their seed; but with perennials they must not only mature their seed, but the plants must be able to survive the winter. Those who hold that perennials cannot be acclimated will find an exception in *Solanum Carolinense*. Darlington, in his "Flora Cestrica," makes the statement that it was introduced by the late Humphrey Marshall into his botanical garden at Marshalltown. Beck, in 1883, gave its distributions as Pennsylvania to Carolina, west to Mississippi. In the second edition of Gray's Manual, Connecticut is included; it is also included in the fifth edition, and in the "Synoptical Flora" it is said to occur from Connecticut to Illinois and southward. Dr. Eaton, however, writes me that he has not seen it, and there is no record of its occurrence in that state except the specimens found by Dr. Robbins. That the weed is still spreading in West Virginia is indicated by Millspaugh, in Bull. No. 24, Agricultural Experiment Station. In 1852 Brendel found it native in Peoria, Illinois. In Iowa and Nebraska it is mentioned in the catalogues of Arthur (1876) and Aughey (1875), but probably only in this state along the southern border, at Keokuk west to Fremont county. From 1888-1894 it has been reported from central Iowa, Greene and Story, northern Fayette, and in numerous places in southern Iowa. Evidently the weed has migrated northward from fifty to seventy-five miles in twenty years.

Dry waste places, (Pursh Flora Am., Sept. 1, p. 156.) Florida to North Carolina, (Chapman, Flora of the S. U. S., 1860, p. 349.) Connecticut, Illinois and southward, (Gray's Manual of the Botany of Northern U. S., Second Ed., p. 339.) (Halsted, Eastern and Western Weeds, Bull. Torrey Bot. Club, Vol. XIX, No. 2, Feb. 1892, p. 46. Proc. Am. Assn. Adv. of Science, Vol. XXXIX, p. 308, August, 1890. Check List of Am. Weeds, No. 450.)

ALABAMA.—Dallas county, (Trelease, 1879.)

ARKANSAS.—Bigelow, (Pitcher, Marcy's Exp., June to Sept., 1849, between Neosta and Red Fork.)

Camden, June 15, 1850, (A. Fendler.)

CAROLINA, NORTH.—Raleigh. "As a troublesome native weed in the state," (Gerald McCarthy, North Carolina Agrl. Exp. Station, Bull. No. 70, p. 11, plate X.)

Swain county, August, 1891, (H. C. Beardslee and A. G. Kofid.)

Wilmington, 1892, (Gerald McCarthy.)

CAROLINA, SOUTH.—Ravenel, (A List of the More Common Native and Naturalized Plants of South Carolina, in South Carolina Researches, etc. Hugh Thompson, Comm., p. 335.)

Aiken, 1869, (Ravenel.) June, 1869, (H. W. Ravenel.)

CONNECTICUT.—Connecticut to Illinois and Southward, sandy soil. (Gray's Manual of Botany of Northern U. S., Fifth Ed., 1867, p. 381.) Connecticut and southern Illinois, Florida and Texas, sandy soil and waste grounds; southward, a troublesome weed in cultivated grounds, (Gray: Synoptical Flora of North Am., Vol. II, part I, p. 230.)

DELAWARE.—Newcastle county. Fields and roadsides frequent, (E. Tatnall, Catalogue of the Phænogamous and Filicoid Plants of Newcastle County, Delaware, 1860, p. 58.)

DISTRICT OF COLUMBIA.—Washington, (Lester F. Ward, Guide to the Flora of Washington and Vicinity, Bull. No. 22, U. S. Nat. Museum, Washington, 1881, p. 100.) Washington, infrequent in streets, (Pammel.) Washington, 1881, (William J. Canby.) December, 1886, (A. A. Crozier.)

FLORIDA.—(J. T. Powell.) Duval county, northeast Florida, cultivated grounds, (A. H. Curtiss.)

Apalachicola, (A. W. Chapman.)

GEORGIA.—(Boykin.)

ILLINOIS.—Peoria. "Found plenty when I came to Peoria in 1852, and has been frequent ever since; sandy soils, fields and roadsides," (Brendel, Flora Peoriana, Budapest, 1882, p. 76. Flora Peoriana, 1887, p. 55.)

Port Byron, (Pammel, Orange Judd Farmer, August 25, 1894.)

Oquawka, (Patterson, Check List of the Native and Introduced Plants of Oquawka, Ill.)

Red Bud, 1887, abundant, (Pammel.)

East St. Louis, 1887, abundant in streets, (Pammel.)

Watseka, (Mark Wall.)

South Chicago, (Higley and Raddin); near Union Stockyards, (Babcock); Grand Crossing (Bastin in Higley and Raddin, The Flora of Cook County, Ill., and a part of Lake County. Ind. Bull. Chicago Acad. of Sciences, Vol. II, No. 1, p. 85.)

INDIAN TERRITORY.—Between Forts Cobb and Arbuckle, on the False Washita, 1868, No. 207, (Palmer).

Along the line of the M., K. & T. R. R., 1887, (Pammel).

Colbert, common along railroads eastward; on prairies west, (C. S. Sheldon and Carleton. Holzinger, Contributions U. S. Nat. Herb., Vol. I, No. 6, p. 196).

INDIANA.—C. R. Barnes, (Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Indiana, 1881, p. 20.)

La Porte county, (E. S. Smith.)

Colehour, (Higley & Raddin, Flora of Cook County, Ill., and Lake County, Ind. Bull. Chicago Acad. of Sciences, Vol. II, No. 1, p. 85.)

Noble county, scarce. (W. B. Van Gorder, Catalogue of the Flora of Noble County, Ind., 1885, p. 31.)

Mishawaka, 1889, (E. B. Ulin.)

IOWA.—(Arthur, Contributions to the Flora of Iowa: A Catalogue of the Phænogamous Plants, 1876, p. 26. Pammel, Am. Agriculturist, Vol. I, p. 387.)

Wapello, 1894. Evidently has been here sometime, at several places in the city, (Pammel).

Grand Junction, October, 1890, (Smith. Pammel, Iowa Homestead, October 17, 1890.)

Ames, 1889, (Hitchcock, Cat. Anthophyta and Pteridophyta of Ames. St. Louis Acad. of Sciences, Vol. V. No. 3, p. 510); Halsted, Bull. Dept. of Botany, Iowa Agricultural College, November. 1886, p. 44); Proceedings Am. Assn. Adv. of Sci., Vol. XXXIX, p. 309 (Pammel.) Established for four years on the station grounds.)

Taylor and Green counties, 1892.

Iowa City, 1893, (Fitzpatrick.) Fayette, 1892, (Mrs. M. E. McWilliams.) Ogden, 1894, (John S. Williams.) Plattville, 1894, (J. B. Studley.) Polk county, Beaver township, 1894, (Lucas.) Audubon, (L. Hudler.) Union Mills, (J. A. Castor.) Mt. Pleasant, 1889, (J. H. Mills.) Des Moines, 1894, (Homestead Co.) Woodburn, Clark county, (Erastus Child, George Phillips.) Bedford, (Geo. Phillips.) Muscatine, (Reppert.) Louisa county, (Hitchcock.) Adair county, (H. C. Wallace.) Keokuk, 1891, (P. H. Rolfs.) Mt. Ayr, (Alex. Maxwell, J. C. Faris, A. J. Imus.) Ames, (Pammel, Combs.) Taylor county, (C. O. Pool.) Conrad Grove, (Steelsmith.) Massena, (Morse, Iowa Homestead, Sept. 11, 1891.) Fontanelle, (Winn, Iowa Homestead, Sept. 12, 1892); (Pammel, Some Obnoxious Weeds of Iowa. Rep. Iowa Agri. Soc., 1893, page 445, plate IV.)

KANSAS.—Topeka, July, 1883, (E. A. Popenoe.)

Fort Riley, (E. E. Gayle.)

Manhattan, (C. H. Thompson.)

Check List of the Plants of Kansas, 1892, p. 81, (B. B. Smith.)

By counties—Sedgwick, Johnson, Greenwood, Saline, Clay, Riley, Wyandotte, Miami, Sumner, Pottawattamie, Crawford, Linn, Cherokee, Bourbon.

By towns—Kansas City, Lawrence, Washington, Topeka, Junction City, Paola, Ottawa, Manhattan, Potwin Place, North Topeka, Waubensee, Douglass, McPherson, Wichita, Harper, Hamilton, Jackson, Reno, Rawlins, Seward, Sherman, Ford, Barber, Cloud, Greeley, Chase, Osage, Decatur, Lawrence, Olathe, Tonganoxie, Louisburg, Osage City, Burlingame, Quenemo, Council Grove, Eckridge, Abilene, Solomon City, Herrington.

KENTUCKY.—Lexington, (Short.)

LOUISIANA.—“Sparse in parishes of southwest Louisiana.” (W. R. Dodson.)

“Common along streams of New Orleans.” (J. M. Ordway.)

MASSACHUSETTS.—Watertown and Reading, fall, 1888, (C. E. Perkins. Collins and Dame, Middlesex Flora, p. 78.)

MARYLAND.—Stockton, Worcester county, (Busby.)

Deer Creek, Hartford county (George Silver.)

MICHIGAN.—Grand Rapids, July, 1886, (Crozier.)

MISSISSIPPI—Determined by Torrey.

MISSOURI.—Common everywhere, (S. M. Tracy, Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Missouri, p. 61.)

St. Louis, 1887, (Colman's Rural World); abundant in streets and fields, 1886, (Pammel); May, 1833, (Geyer); August, 1847, (Engleman); (Riehl).

Louisiana, (Isaac Newton, Catalogue of the U. S. Plants in the Dept. of Agrl., p. 14.)

Jackson county, June, 1892, July, 1893, (Bush.)

Jefferson City, August, 1871, (C. Krause).

NEBRASKA.—1875, (Samuel Aughey, Catalogue of the Flora of Nebraska, published by the University of Nebraska, 1875, p. 21).

On the plains from Nebraska to Texas and westward to the mountains, (J. M. Coulter, Manual of the Botany of the Rocky Mountain Region, p. 269.)

Nehawka, (Swezey.)

Crete, (J. D. Swezey.)

Weeping Water, 1889, 1890. (No. 147), (T. A. Williams.)

Mouth of White River, June 17, 1853, (Hayden.)

Lincoln, Peru. Weeping Water, waste places, not common,
(Webber, Catalogue Flora of Nebraska, 1889, p. 136.)

Platte River bottoms, (Webber, Appendix to the Catalogue of
the Flora of Nebraska. Trans. St. Louis Acad. of Sciences,
Vol. VI, No. 1, p. 7. Cont. Shaw School of Botany, No. 9.)

NEW JERSEY.—New Brunswick, cultivated grounds, (Hal-
sted, Rep. Bot. Dept. N. J. Agrl. Exp. Station, 1890, pp. 397,
440 and 441, A. W. Davis.)

Shiloh, Cumberland county, (A Century of Am. Weeds, Bull.
Torrey Bot. Club, Vol. XIX reprint, p. 144.)

In dry soil.

Hudson: Weehawken, (Britton); Bergen Point, (Leggett.)

Union: Plainfield, (Tweedy.)

Warren: Banks of the Delaware at Philipsburg, (Porter.)

Hunterdon: Rosemont, rare, (Best); Rush island, Delaware
river, (Theo. Breen.)

Mercer: Trenton, frequent, (Miss Isabel Mulford.)

Burlington: Pemberton, (Lighthipe.)

Camden, (Parke.)

Salem, banks of the Delaware, (Commons.)

In waste places.

Passaic: Sparingly about Passaic, (Woolson.)

Atlantic: Introduced in grain at Hammonton, (F. L. Bassett.)

Cape May: Cape May Point, (Canby.) Fugitive from the
west.

NEW YORK.—Plants reported as growing spontaneously
within one hundred miles of New York city, (Comm. Torrey
Botanical Club. Preliminary Cat. of Anthophyta and Pteri-
dophyta, etc., 1888. p. 38.)

New York City: Within one hundred miles of New York
city, (Preliminary Catalogue of the Anthophyta and Pteri-
dophyta, etc.)

Roadsides New York State, South and West, (Wood and
Willis, The New Botanist and Florist, p. 263.)

Roadsides, etc.. Rough Weeds New York, Illinois and Geor-
gia, (Alphonso Wood. Class Book of Botany, with a Flora of
the U. S. and Canada. p. 578.)

Buffalo, (George W. Clinton, Preliminary List of Plants of
Buffalo and its Vicinity, 1864, p. 8.)

Day: Rare. Along the Buffalo and Lake Huron Railroad
track at Fort Erie, Ont. Along the track of the Lake Shore

and Michigan Southern Railroad in Buffalo, (The Plants of Buffalo and its Vicinity. Bulletin Buffalo Soc. Nat. Sciences, Vol. IV, No. 3, April, 1882, p. 125. A Catalogue of the Native and Naturalized Plants of the City of Buffalo and its Vicinity. Buffalo, 1883, p. 61).

OHIO.—Cincinnati: (Joseph F. James, Catalogue of the Flowering Plants, Ferns and Fungi growing in the vicinity of Cincinnati, p. 14, from Journal Soc. of Nat. Hist., April, 1879.)

Central and South: (Newberry, Catalogue of the Flowering Plants and Ferns of Ohio, 1860, p. 28.)

Central and Southern Ohio: (H. C. Beardslee, Catalogue of Plants of Ohio, 1874. Ohio Agrl. Rep. 1877, pp. 336-363.)

Medina: (M. T. Prichard).

Cincinnati: June 25, 1890, near Cincinnati, June, 1879, (C. G. Lloyd).

ONTARIO.—Fort Erie: Day, (see New York).

PENNSYLVANIA.—“Introduced from the south by the late Humphrey Marshall into his botanic garden at Marshalltown—whence it has gradually extended itself round the neighborhood, and strongly illustrates the necessity of caution in admitting mere botanical curiosities into agricultural districts.” Pastures, etc., naturalized from the southern states, (Darlington, Flora Cestrica, 3d edition, 1853, p. 229). (Darlington and Thurber, Am. Weeds and Useful Plants, Second Ill. edition., p. 256. Fig. 164.)

Pennsylvania to Carolina west of Mississippi: (Beck—Botany of North and Middle States, 1823, p. 257).

Pennsylvania to Carolina west to Iowa and Illinois. A weed of roadsides. (Alphonse Wood, Class-book of Botany and Flora, edition 1847, p. 448. Sand Beach, Dauphin Co., (Mr. Galloway).

TENNESSEE.—Fields and gardens: (Gattinger, The Tennessee Flora, with special reference to the Flora of Nashville, 1887, p. 67). (F. Lamson-Scribner and C. L. Newman, Weeds of the farm, Tenn. Agrl. Experiment Station, Vol. 1, Oct., 1888, No. 3, p. 40, Plate VIII).

TEXAS.—Drummond: Sandy soil and waste ground extending into Texas from the Atlantic region. (J. M. Coulter Contr., U. S. Nat. Herb., Vol. II, p. 298).

Denison: Is very common and annoying in cultivated sandy lands. (T. V. Munsen).

VIRGINIA.—Virginia to Georgia on roadsides and old fields. (Pursh—Flora Amer. Septentrionalis, London, 1814, I, p. 156).

Marion: (Britton.)

Bedford county: Oct. 4, 1871, (A. H. Curtiss.)

VIRGINIA, WEST.—This exceedingly pernicious weed is rapidly spreading throughout the state, apparently from the west and southwest portions eastward and northward. (Mills-paugh, Bulletin Nos. 22 and 23, West Virginia Agr'l Exp. Station, 1892. In Bulletin No. 23 and 22 Agr. Exp. Station included under list of twenty-five worst weeds. Also the Flora of West Virginia, Bull. No. 24, Vol. II.)

Becoming a detestable weed in fields and forests—

Lewis: along Leading Creek. Wood: near Kanawha Station. Wort: near Elizabeth. Randolph: near Crickard P. O. Webster: on Buffalo Bull Mountains. Nicholas: near Beaver Mills. Gilmer: near Glenville, V. M. Payette: near Nuttallburgh-L. W. N. Monongalia: near Ice's Ferry. Cabel: near Barboursville. Green Brier: near White Sulphur Springs. Monroe: near Alderson. Sumners: near Hinton. Kanawha: near Charleston. Jefferson: near Flowing Springs, and Shepherdstown. Mason: near Point Pleasant. Mercer: near Ingle-side.

Reported as a troublesome weed from—

Harrison: near Clarksburgh, Wilsonburgh, Good Hope, Mt. Clare and Wallace. Ohio: near Elm Grove and West Liberty. Wood: near Waverly, Belleville, Deer Walk and Kanawha Station. Hardy: near Moorefield and Wardensville. Grant: near Medley and Petersburg. Jefferson: near Moore's and Kabletown. Summers: near Forest Hill and Talcott. Wetzel: near Endicott, Pine Grove, New Martinsville and Blake. Mineral: near Patterson's Depot and Blaine. Wirt: near Burning Springs, Morris, Evelyn and Weedy Ripple. Jackson: near Grass Lick and Odaville. Cabell: near Union Ridge and Barboursville. Taylor: near Knottsville. Wayne: near Stone Coal and Adkin's Mills. Doodridge: near Smithton and Center Point. Marshall: near Knoxville and Welcome. Braxton: near Bulltown and Tate Creek. Berkley: near Hedgesville. Mercer: near Brammwell and New Hope. Roane: near Looneyville, Clio, Reedy and Pencil. Pocahontas: near Lobelia. Kanawha: near Blundon. Greenbrier: near Trout Creek. McDowell: near Squire Jim. Mason: near Maggie. Brooke: near Wellsburgh. Marion: near Mannington. Taylor: near Grafton. Upshar: near Kanawha Head, Overhill and Hemlock. Hampshire: near Higginsville and Springfield. Tyler: near Long Reach. Webster: near Welsh Glade. Clay: near Valley Fork.